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COMBATING POST-TRAUMATIC STRESS DISORDER FAR-BEYOND THE BATTLEFIELD

By

Maj Salvador V. Vargas

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Advisor: Dr. Edward Ouellette

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I have always had a great interest in researching this multidimensional and complex stress disorder. As a deployed Critical Care Air Transport Team/Trauma and Flight Nurse, I routinely encountered trauma, violence, deaths, and was repeatedly exposed to intensely disturbing human suffering. As a final note, I am thankful to the brave men and women who have donned the uniform to keep us free.

Abstract

There is a mental health crisis in the U.S., specifically Post-Traumatic Stress Disorder (PTSD) is devastating the military community. An increasing number of Overseas Contingency Operations (OCO) veterans and recently separated service members are suffering from this complex disorder. PTSD cases are growing daily and without early intervention and treatment, the rate, morbidity and associated cost will become unmanageable. Civil-Military leaders need periodic tools and protocols to help those who suffer from PTSD.

This research paper uses primary and secondary sources to collect and integrate PTSD data and associated mental health problems. The background information, with a clinical definition and historical data was derived from evidence-based research and academic literature. Qualitative and quantitative information from previous and on-going research studies show great results for early intervention and treatment for PTSD. Nonetheless, it also indicates that more needs to be done for those who prefer other types of complementary and alternative treatment modalities to treat this multi-dimensional disorder. Another significant factor revealed in this research paper, is the need for leader-driven educational programs to combat the stigma associated with PTSD.

There is no cure for PTSD. However, with early intervention and treatment, OCO veterans and recently separated service members and their families can live a stable and productive life. Today's military requires emotionally intelligent leaders to seek educational and

wellness programs with standardized periodic screening tools and protocols to help those whom they have been entrusted to lead.

Introduction

"For those who have fought for it, Freedom has a flavor the protected will never know"

-Unknown Author

The United States currently faces a mental health crisis created by a serious and complex syndrome with grave psychological and physical consequences far beyond the battlefields of Vietnam, Afghanistan, and Iraq. Post-Traumatic Stress Disorder (PTSD) is nothing new, it has existed and caused 'silent suffering' for millions of veterans throughout this nation's wars and ongoing overseas conflicts. Even though the reported signs and symptoms of PTSD appear to be the same, the syndrome has been named differently throughout war history.[1] The physical and emotional effects of combat trauma have been well documented and attributed to either "gross-stress-reaction", "shell-shock", neuroses, Vietnam-Syndrome, "combat fatigue", or simply labeled as cowardice. Nevertheless, because of the mounting cases of this urgent and debilitating disorder, in its current form, the U.S. is facing the highest PTSD rate in its military history. Data has proven that, war after war, decade after decade, American combat deaths have dropped considerably while PTSD cases have increased significantly. Case in point, most recent wars and conflicts in support of Operation Iraqi Freedom (OIF), Operation Enduring Freedom (OEF), and Operation Odyssey Dawn have an inverse relationship with Poly-trauma, mental disorder/disability, and conflict fatalities. According to Drew T. Doolin's research, "America's returning veterans of *Operation Iraqi Freedom* and *Enduring Freedom* are in the midst of the largest mental health crisis since the Vietnam War."[2]

Further, there is an ethical duty, financial commitment, and moral obligation from the American public and civil-military leaders to the selfless sacrifices of service members and their families. In view of that, the U.S. government spends an estimated four billion dollars per year on healthcare and disability payments on war veterans with acute and chronic PTSD.[3] Even though, there is no direct correlation and or data that links PTSD with increased crime rates among veterans, there is a higher risk of substance abuse, unproductivity, unemployment, and homelessness;[4] subsequently incarceration for prior service members suffering from mental health problems. These numbers continue to grow at an astounding rate—of course the cost is small compared to the *ultimate sacrifice* and the long term socioeconomic consequences. Nonetheless, without early intervention and treatment, the cost and effect of PTSD will skyrocket and will become unsustainable.

Civil-Military leaders need the necessary PTSD tools and protocols to help them identify and recognize the psychological and physiological signs and symptoms of this multi-dimensional and complex disorder. Due to the increasing number of cases of this complex syndrome, the U.S. is facing the highest PTSD rate in this nation's military history. As previously noted, not since the Vietnam War have a large number of service members returning from Overseas Contingency Operations (OCO) been in the center of the largest mental health crisis.[5] These numbers are growing daily and without early intervention and treatment, the rate and associated cost will continue to increase and consequently become unmanageable. In fact, the U.S. government, specifically the Veterans Health Administration (VHA), spends billions of dollars per year in disability payments and associated healthcare costs for recent OCO veterans, to include service members diagnosed with this chronic and incapacitating disorder.[6] While substantial progress in different and promising treatment modalities have been put to practice,

more needs to be done to prevent a new generation of war veterans from developing this complex and chronic psychobiological disorder.

Background

Many service members returning OCO have experienced a traumatic event, most know someone (e.g. Battle Buddy or Wingman) who witnessed or was directly confronted by a traumatic event. While most war veterans exposed to a traumatic event may not develop PTSD, many others might. The following source data depicted in Figure 1 was obtained from the RAND study by Terri Tanielian, and illustrates the rates and types of trauma exposure among OCO veterans returning from OEF and OIF.

Rates of Trauma Exposure in OEF/OIF (N=1965)	Weighted Percentage	95% CI LL	95% CI UL
Having a friend who was seriously wounded or killed	49.6	45.7	53.6
Seeing dead or seriously injured non-combatants	45.6	41.3	49.1
Witnessing an accident resulting in serious injury or death	45.0	41.1	48.9
Smelling decomposing bodies	37.0	33.3	40.7
Being physically moved or knocked over by an explosion	22.9	19.6	26.1
Being injured, not requiring hospitalization	22.8	19.2	6.3
Having a blow to the head from any accident or injury	18.1	15.1	21.1
Being injured, requiring hospitalization	10.7	8.2	13.1
Engaging in hand-to-hand combat	9.5	7.3	11.6
Witnessing brutality towards detainees/prisoners	5.3	3.3	7.3
Being responsible for the death of a civilian	5.2	3.0	7.4

Figure 1. Note: CI = Confidence Interval; LL = Lower Limit. Percentage are weighted to reflect the full population of 1.64 million service members who had deployed to OEF/OIF as of October 31, 2007.[7]

Signs and symptoms of this silent-disorder are difficult to recognize and treat because there are no obvious external injuries, thus civil-military leaders with no training and adequate skills to detect PTSD will likely miss warning signs of this mental illness. While there are some common signs some service members will manifest, there is no “one size fits all”, some may experience one or two different signs and symptoms and perhaps a combination of problems that

may come and go over unpredictable times. By in large, the three most prevalent and major mental health conditions painfully stressing active duty service members, recently discharged veterans, their families, and the general public are: PTSD, Traumatic Brain Injury (TBI), and Depression.[8] Consequently, if symptoms don't go away and the disorder worsens, then this complex illness may disrupt the service member's ability to function emotionally, socially, and or occupationally, eventually disrupting his work and family environment.

Even though there has been substantial progress in the treatment (e.g. counseling, psychotherapy, resiliency training) of PTSD, more needs to be done to significantly reduce the risk of veterans developing a more chronic and incapacitating disorder. Most studies and literature on combat-related mental illness discusses at great length current investigations in the study of PTSD, in particular promising treatment modalities for this syndrome. One great example is The South Texas Research Organizational Network Guiding Studies on Trauma and Resilience (STRONG STAR). This is a multi-disciplinary and multi-institutional research consortium sponsored and funded by the U.S. Department of Defense (DoD) and Veterans Affairs (VA).[9] STRONG STAR is a leading organization in the development and assessment of the most current and effective modalities for detection, diagnosis, early intervention, and treatment of PTSD in active-duty service members and discharged veterans.[10] Another excellent evidence-based research study conducted by the Institute of Medicine of the National Academies, conducted by different mental health experts, evaluates and discusses "the physical, mental, social, and economic effect and identifies gaps in care for members and former members of the armed forces who were deployed to OIF or OEF, and their families, and their communities."[11] Some experts in the field argue in favor of and recommend more research in counseling therapy and resiliency training with a holistic approach to prevent a new generation

of war veterans and their families from developing this complex and chronic psychobiological disorder. However, those same experts do not mention or offer recommendations for steps and or protocols civil-military leaders should follow in order to help those who suffer from PTSD. In view of that, there is a need to fill a gap with a more proactive approach in alleviating the pain and suffering associated with this disorder—by actively communicating with the brave men and women civil-military leaders have been entrusted to lead. For all intents and purposes, civil-military leaders need to be provided with the necessary tools *(PTSD Protocols)* to recognize the psychological and physiological signs and symptoms of PTSD; steps they need to follow; and the when and where to send their subordinates when they require help.

Undeniably, there is evidence that supports the effects of PTSD beyond the afflicting OCO service member. In general, there is a large range of indirect and direct consequences that PTSD have on the service members their families and loved ones.[12] Some of these concerns range from emotional and physical abuse in the home to inability to sustain employment and financial hardship.[13] On occasion, family members are uncertain how to react and respond to the service members PTSD warning signs. Time and again family members who devote themselves to caring for their loved ones with PTSD often neglect their own needs the needs of their children, which may extend beyond the lifespan of the OCO veteran for generations to come. Despite the fact that family members and loved ones are an essential part of PTSD treatment, this study is primarily focused on the active duty service member and returning OCO veterans.

If PTSD is not controlled, the instability and unpredictability of this disorder will have an unfavorable and lasting impact not only in the U.S. but globally in the healthcare industry, geopolitical and economic sector for generations to come. In fact, the RAND testimony presented by Tanielian, highlights three major *Invisible Wounds of War* (PTSD, TBI, and

Depression) causing grave pain and suffering.[14] They also focus on associated cost, available resources, and effective evidence-based psychotherapy, to safeguard a high-functioning and mission ready force.[15] To elaborate more, this multifaceted mental health crisis requires the immediate attention of civil-military leaders at all levels, because at the end, the nation with the most resilient warriors, healthiest military power and economic clout will most likely survive unpredictable times. Hence, there is a great need for emotionally intelligent leaders that have a basic understanding of PTSD and the wisdom to seek available resources to combat this complex psychobiological disorder far-beyond the battlefield.

Results of this research will help active-duty military service members and recently discharge veterans suffering from PTSD, in particular OCO veterans and their families. In general, civil-military leaders, combat veterans and their families will most certainly benefit from recommendations of this study. The *problem/solution method* approach will be used primarily to query, collect, interpret data, and offer an alternative solution—with the overall aim of resolving a problem.[16] This research has the potential to bring many stakeholders to the table and actively participate throughout this study and develop a culture of change.[17] Eventually, "The ultimate aim should be to improve practice in a systematic way and, if warranted, to suggest and make changes to the environment, context or conditions in which that practice takes place."[18] Case in point, there is a critical need to fill a gap and develop assessment protocols so that civil-military leaders can help those who suffer from PTSD and associated mental health illnesses.

Post-Traumatic Stress Disorder Clinical Definition

There is a silent cry for help from our nation's bravest men and women. The United States is currently facing an incapacitating and chronic disorder like never before. If left

untreated, chronic PTSD has the potential to affect military readiness and hinder its ability to confidently confront future conflicts. PTSD is a complex psychobiological and mainly subjective syndrome manifesting anxiety and or depression (or a combination of both). The stress develops after being exposed to a terrifying event or the feeling of the accumulation of ongoing suffering in which severe and grave physical and or psychological harm occurred or was perceived to have taken place. Prolonged stress affects military service members in different ways, with increased adrenaline, cortisol, and results in an imbalance of neurotransmitters which consequently affects their physical and mental health. Even though there is evidence-based diagnostic criteria and clinical classification for PTSD, there is no straightforward objective, laboratory studies, or x-ray results to diagnose someone with this multifaceted illness. Therefore, diagnosing someone with PTSD can present some challenges because the pain and symptoms can be inner and subjective and known only within the individual's domain. Also, some of the same associated PTSD symptoms (e.g. anxiety, irritability, anger, emotional instability/numbness, and insomnia) can be linked with other mental health problems. Still, there are certain signs and symptoms and behavioral criteria a service member must meet to be diagnosed with PTSD.

It is not uncommon for returning OCO service members to have experienced some type of trauma or stress while deployed. However, it is important to clarify that not all who have lived through and experienced a dangerous and or shocking event have developed or will ever develop PTSD. In fact, PTSD is a natural reaction of the most primitive "fight-or-flight" response. Some scholars may argue that these are expected split-second reactions during and after an actual or perceived traumatic event. In other words, these are typical protective reaction mechanisms which are natural and healthy every time humans feel threatened by a traumatic

event. In general, the next time someone is confronted by a similar traumatic event, they remember their previous experiences and thus become more resilient and able to rapidly adapt, cope, and recover more effectively. Hence, most people will most likely recover and these stressful reactions will diminish within the first few days or weeks once the threat(s) has been removed. On the other hand, for people suffering from protracted PTSD, these reactions do not go away readily within a short period of time. In these cases, signs and symptoms will continue to manifest weeks to months after the threat has been removed and even one year after the traumatic event. Consequently, in most of these cases, if the service member does not receive early intervention and is not properly treated, the perceived or actual stressors will most likely continue causing severe anxiety and depression to the point of grave psychobiological harm.

According to the U.S. Department of Veterans Affairs (VA), this disorder (either short- or long-lasting) "is unique among psychiatric diagnoses because of the great importance placed upon the etiological agent, the traumatic stressors [e.g. natural or man-made disaster, combat, serious accident, witnessing the violent death of others, or being the victim of torture, terrorism, rape, or other crime]…Clinical experience with the PTSD diagnosis has shown, however, that there are individual differences regarding the capacity to cope with catastrophic stress…Like pain, the traumatic experience is filtered through cognitive and emotional processes before it can be appraised as an extreme threat."[19] Undoubtedly, PTSD doesn't just happen to OCO veterans. It happens to women involved in domestic abuse, children who are abused, and any other type of traumatic event. However, this research paper is primarily focused on the active duty military service member, recently separated veterans that have served in OCO and are suffering with acute and chronic PTDS.

The most current version of the newly revised and standardized Diagnostic and Statistical Manual of Mental Disorder (DSM-5) was recently published by The American Psychiatric Association. This fifth edition has major revisions which include diagnostic criteria for PTSD and Acute Stress Disorder centered on evidence based clinical and scientific research. This quick desk reference helps physicians identify criteria, types of disorders, and subtypes of mental health illnesses to further define and determine a clinical diagnosis.[20] For a service member to be diagnosed with PTSD, they need to be evaluated for signs and or symptoms by qualified health care providers and meet the minimum standardized criteria in the DSM-5 manual. In general, the following DSM-5 criteria, signs and symptoms for PTSD were derived from the VA's *Professional Section for Researchers, Providers, and Helpers* website:[21]

- Directly experienced a traumatic event
- Witnessed a traumatic event
- Repeatedly exposed/faced with pain and suffering (e.g. first responders to the scene of traumatic events; collecting human remains)
- Relives/Re-experiences traumatic event (e.g. flashbacks of disturbing images and painful memories)
- Distressing dreams about disturbing event/images (e.g. nightmares, trouble sleeping)
- Ongoing and uncontrollable distress or severe emotional/physical pain related to a traumatic event
- Constantly on a state of alert/guard for signs of danger (e.g. jittery, severe anxiety, always on the lookout for danger)
- Actively engaged in self-destructive and reckless/dangerous behavior
- Unable to concentrate and forgetting important parts of the traumatic event (not rated to head injury, alcohol, or drugs)
- Negative view of yourself and feeling detached from friends and family
- Emotional numbness/feeling irritable and angry with unpredictable violent outburst
- Suicidal/Homicidal ideation

These conditions are not necessarily mutually exclusive and may be manifested by all those exposed to a traumatic or stressful event. Some of the criteria, signs, and symptoms can

overlap and the military service member can regularly express one stressor-related disorder or a combination of those listed above.

Social-Economic Effects of PTSD

The U.S. military is as strong and effective because of the selflessness and support their families provide. In every generation, the lifeline of an all-volunteer force is the family members and supporting communities who stand and serve with then. In the same way, and just as in other acute and chronic healthcare problems, long-term care for PTSD can be effectively managed with early intervention and thus reducing the mortality, morbidity, and associated healthcare cost. Yet, to ensure this great nation is able to sustain the mounting healthcare cost, people must be aware of the social-economic effects of PTSD.

In a 2009 RAND testimony presented before the House Veteran's Affairs Committee, Terri Tanielian underscored the severity and high rate (18.5%) of PTSD among U.S. veterans returning from OIF and OEF. Also, in her study she projected the economic cost to society to be approximately $4.0 to $6.2 billion dollars (2007 dollars) for the treatment of PTSD and major depression, though mainly due to lost productivity.[22] In her report, Tanielian cautions when interpreting these numbers, since her data underestimates future economic cost to society and these figures are limited to two years post-deployment and they do not account for future deployments (OCO).[23] As previously mentioned, these numbers are growing daily and the economic cost will skyrocket and become unsustainable in the near future. An article by The National Academies Press echoes future cost projections: "Historically, the peak demand for compensation has lagged behind the end of hostilities by 30 years or more, so the maximum

stress on support systems for OEF and OIF veterans and their families might not be felt until 2040 or later."[24] This alarming forecast is troubling considering unpredictable times facing the U.S. economy. Keeping these dire economic predictions in mind, it's critical for the American people to understand the complexity, comorbidity, and social consequences caused by PTSD.

Research has shown the array of multi-focal injuries and long-term medical, psychosocial, and psychiatric problems associated with PTSD. These comorbid metal illnesses are complex and not only effect military service members but also their families and communities. Other more common psychiatric disorders associated with high rates of PTSD are depression, anxiety, alcohol, and substance abuse.[25] Consequently, according to Dr. Bessel van der Kolk, a leading psychiatrist and PTSD specialist, a high percentage of service members returning from OEF and OIF are suffering from PTSD, have higher proportion of suicides, unemployment rate, and many end up drawing their families into a vicious cycle of suffering.[26] Additionally, some studies link smoking-related outcomes with PTDS, depression, and other psychiatric disorders.[27] For example, alcohol-related abuse and initiating smoking among baseline never smokers has been linked to PTSD and is well known and reported frequently in OEF and OIF veterans. Generally, as the severity of PTSD symptoms increase, so does the severity of alcohol and substance abuse.[28] Alcohol and substance-related abuse is of serious concern because it has been associated with multi-organ problems. Specifically, alcoholism has been linked to liver complications, neurological disorders, cardiovascular conditions, and traffic deaths. Further, excessive alcohol and substance abuse has been connected with higher incidents of psychiatric problems (suicidal and or homicidal ideation), domestic abuse, and decreased work performance.

The worst possible outcome for a military service member suffering from this complex disorder is suicide. Even though there is an alarmingly high rate of suicides among OEF and OIF veterans, there is no compelling data linking suicides rates with PTSD alone. Nonetheless, service members and OCO veterans suffering from both PTSD and depression have a higher risk of suicide.[29] "In 2009, the suicide rate for military members serving on active duty was 18.3 per 100,000, the highest since 1980. The following year, that rate dropped to 17.0."[30] In 2010 approximately 50 percent of suicides were among active duty service members and veterans who served overseas in contingency operations.[31] Even though most suicide attempts fail, the devastating self-inflicting injuries cause very serious damage requiring long term medical and psychosocial care and in many cases lifetime care. As a result, these lifetime injuries increase the cost of healthcare while decreasing work productivity. Subsequently, those who suffer from PTSD and were unsuccessful ending their lives, are particularly vulnerable and are at increased risk for attempting suicide again. As noted earlier, the consequences of PTSD and suicide rates are far reaching and extend far beyond the member's immediate family and social network, it also affects unit morale and taxes the entire military community.

Current PTSD Screening Tools

Pre and Post Deployment Health Assessment

As discussed previously, the nation with the most resilient warriors, healthiest military, and economic power will most likely have greater influence in the geopolitical arena. For that reason, it's vital for the U.S. to have a strong mission ready force with physically and mentally fit warriors. To assess the physical and mental conditions of U.S. service members, the Department of Defense (DoD) and the Department of Veterans Affairs developed a sequential multi-step health assessment process. The Department of Defense Instruction (DoDI) 6025.19,

Individual Medical Readiness and DoD Directive (DoDD) 6200.04, *Force Health Protection*, serve as comprehensive instructions and directives which establishes service members' health surveillance. The DoD and the Air Force (healthcare system) have instructions, guidance, and procedures in place for pre- and post-deployment Preventive Health Assessments (PHA) to evaluate the overall health and readiness of Airmen. In accordance with (IAW) Air Force Instruction (AFI) 44-170, *Preventive Health Assessment*, the goal of the program is to recommend evidence-based cost effective measures and to identify potential service members with duty-limiting condition.[32]

Moreover, IAW DoDI 6490.03 and DoDI 6490.07, service members who are scheduled to deploy are mandated to go through a Deployment Health Assessment (DHA).[33] The deployment health assessment (DHA) program primarily focuses on the healthcare needs identified in the deployment-rated health assessments (DRHA). There are a total of five DRHAs during the pre- and post-deployment phases, to include two mental health assessments (MHAs).[34] The DRHAs are administered at different intervals and align with the annual Periodic Health Assessment (PHA). In general, the following is the assessment and reassessment DRHA timing cycle (see Figure 2): the first mental health assessment coincides with the Pre-Deployment Health Assessment (PDHA) within 120 days of deployment; the second mental health assessment is conducted 30 days prior to returning home from a deployment (prior to leaving theater of operations) or within 30 days post-deployment and coincide with the Post-Deployment Health Re-Assessment; the third mental health assessment is administered at 90-180 days post deployment and coordinated with the annual PHA; the fourth mental health assessment is administered between 181-545 days post-deployment and aligned with the PHA. The fifth and final DRHA is administered between 546-910 days post-

deployment. This assessments are developed to better recognize and understand the physical and psychological health care needs of service members. For example, if a healthcare provider identifies a psychological concern (e.g., Post-Traumatic Stress Disorder, Anxiety, and or Depression) during the DRHA process, he or she can take immediate action and direct or provide the service member to the appropriate resources.

Deployment-Related Health Assessment Program Requirements **DRHA Timeline**	
DRHA #1	Within 120 days prior to deployment and accomplished during medical out-processing
DRHA #2	Within 30 day prior to theater departure or within 30 days after redeployment at home station; ideally accomplished with pre-reintegration and medical out-processing from theater of operation
DRHA #3	Between 90-180 days post-deployment
DRHA #4	Between 180-545 days post-deployment; ideally accomplished with annual PHA
DRHA #5	Between 546-910 days post-deployment; ideally accomplished with annual PHA

Figure 2: Information obtained from: Air Force Instruction (AFI) 44-122, *Deployment Health*. 18 August 2014. Chapter 3, Page 15-16.[35]

Military service members have access to different cognitive and behavior self-reporting tools they can use to help identify and document their own signs and symptoms of past traumatic experiences. Also, for medical health professionals there are several medical manuals, screening tools, therapeutic models, and assessment techniques (e.g. assessment protocols, verbal, and non-verbal cues during an interview) they use to diagnose someone with Post-Traumatic Stress Disorder (PTSD). Experts in the mental health system use the new Diagnostic and Statistical

Manual of Mental Disorders (DSM-5) criteria to identify specific criteria during a psychological evaluation to diagnose and treat a service member with PTSD. Further, the Department of Veterans Affairs National Center of Posttraumatic Stress Disorder (Professional Section) established a list of PTSD screens and brief questionnaires which help mental health providers identify service members who may be experiencing significant symptoms of PTSD. Even though, there are many diagnostic clinical instruments on the Veterans Affairs website, this research paper primarily focuses on PTSD screening tools supported by Air Force Instruction 44-172 and used by military health care professionals.

The Primary Care PTSD Screen

Depending on the severity, level of detail, and clinical circumstances, the amount of time and screening required to assess for PTSD symptoms may differ. For example, the mental health assessment process to rule-out PTSD entails three stages and is initiated when the military service member self-reports his or mental health concerns.[36] The following steps and clinical tools are commonly followed: the first stage is The Primary Care PTSD Screen (PC-PTSD) is a short quick and simple "yes" or "no" answer questionnaire for many different and prevalent types of traumatic experiences (Figure 3).[37] Answering two of the four self-report criteria triggers a positive result and additional screening and follow-up questions in stage two. Although this is the first step in the process, this four-item screening tool is designed primarily for self-report, but does not automatically constitute a definite DSM-5 PTSD diagnosis.

In your life, have you had any experience that was so frightening, horrible, or upsetting in the last month that you:			
1.	Have had nightmares about it or thought about it when you did not want to?	Yes	No

2.	Tried hard not to think about it or went out of you way to avoid situations that remind you of it?	Yes	No
3.	Were you constantly on guard, watchful or easily startled?	Yes	No
4.	Felt numb or detached from others, activities or your surroundings?	Yes	No

Figure 3: Primary Care PTSD Screen (PC-PTSD). Information Obtained from: U.S. Department of Veterans Affairs. PTSD: National Center for PTSD. Professional Section for Researchers, Providers, and Helpers. Washington, D.C. Website Last Updated February 23, 2016.[38]

The Post-traumatic Stress Disorder Check List (PCL-5)

The Post-traumatic Stress Disorder Check List (PCL-5) is stage two and the follow-up self-report screening questionnaire. The PCL-5 has behavior and cognitive psychometric assessment measures and it takes approximately 10 minutes to complete. The PCL-5 version used by the military consist of 20 Linkert-type scale and references the new DSM-5 psychiatric manual (released 2013).[39] The mental health provider interprets and sums the score for each of the 20 items and the severity of the overall score (range 0-80).[40]

Clinical-Administered PTSD Scale

Stage three, person-to-person dialog consist of the Clinician-Administered PTSD Scale (CAPS-5) to clarify previous symptoms reported by a military service member. This "gold standard" assessment tool, is a structured 30-item interview and takes approximately 45-60 minutes to administer by a trained clinician.[41] The CAPS-5 entails a direct patient interaction and clinical assessment by the health care provider to elicit information from the patient about warning sign and to make a determination whether the service member meets the DSM-5 diagnostic criteria and associated problems for PTSD. The questions primarily target the onset, duration, intensity, and frequency of the PTSD symptoms.

It is important to understand that a positive or negative response does not necessarily indicate that a service member may or may not have PTSD and further evaluation for trauma-related problems may be warranted. While clinical tools are for the most part helpful to identify certain mental health conditions, they cannot alone provide a comprehensive assessment and diagnosis for PTSD. In other words, while very helpful and primarily used to enhance rapport and open the dialogue, they cannot replace a trained mental health provider with experience in psychiatric disorders. Symptoms are highly subjective and the determination to know if they have met or exceeded a scale threshold is left to the clinical judgment of the provider.

Barriers to Treatment

Possible barriers or stigmas attached to seeking treatment can be significant and problematic since studies suggest that early intervention is key to PTSD recovery.[42] There can be different reasons why active duty service members and Overseas Contingency Operations (OCO) veterans do not express their feelings to break the silent of the unseen suffering. In fact, there is no perfect way of reporting mental health illness. Some well-designed PTSD programs face cultural, personal, professional, and or relationship obstacles. For example, many service members fear that their careers (e.g. security clearance, career advancement, etc.) will be jeopardized for self-reporting operational stress injuries. Others perceive OCO mental stress as a sign of weakness and not compatible with the warrior ethos. Some OCO veterans and their family members live too far from their closest Military Treatment Facility (MTF) and they simply cannot make frequent visits to see their mental healthcare provider. Many others fall short of the clinical diagnosis, even though they frequently experience and manifest PTSD, consequently they stop seeking help altogether.

Other potential barrier lays within the service member's unit commanders (civil-military leaders). For example, commanders and/or immediate supervisors, such as OCO veterans, every so often have the same combat involvement and same levels trauma experience, nevertheless there is no formal process for them to report the level of stress experience by their subordinates. In other words, there are no standardize or formal post-deployment mental health screening tool for civil-military leader to implement periodically on their subordinates. Hence, periodic post-deployment mental health screening tools with wellness programs need to be leader-driven to ensure early signs of PTSD are captured and treated promptly. Since, "waiting for service members themselves to seek treatment may be too late, as service members may be motivated to seek treatment only after their impairment have resulted in negative consequences."[43]

Evidence-Based Treatment Modalities

Since September11, 2001, over 2 million Americans have served in support of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF)—of those, over 800,000 veterans have deployed multiple times.[44] Current studies have revealed that 37 % of Overseas Contingency Operation (OCO) veterans, primarily those that served in Iraq and Afghanistan, have been diagnosed with a mental health condition—Post-Traumatic Stress Disorder (PTSD) being the most predominant diagnosis with a 22% rate.[45] Service members (OCO veterans) who suffer from PTSD may experience a number of neurobiological and physiological changes and consequently a wide range mental and physical symptoms. Due to the frequency, severity, and type of the traumatic condition, it is not easy to classify and diagnose PTSD. In some cases, PTSD symptoms can manifest right after the traumatic exposure. In other cases, however, the onset of PTSD can vary and be delayed from a few months to many years later. In other words, not all exposed to war-trauma react and perform in the same manner; and not the same PTSD

therapies work the same way for all those exposed to war-trauma. Hence, there is no single best treatment for service members suffering from PTSD. However, there are promising evidence-based psychotherapy and pharmacotherapy treatment with encouraging results. Often times, mental health professional use a combination of psychotherapy and pharmacotherapy to more effectively treat PTSD an associated mental health illnesses. There are many different types of PTSD therapies and innovative treatment modalities in the civilian sector and military medicine. This research paper is primarily focused on some of the most prominent evidence-based treatments currently being use in the military. These evidence-based trauma-focused psychotherapy include: Cognitive Behavior Therapy (CBT) which includes both Cognitive-Processing Therapy (CPT) and Prolonged Exposure (PE); Eye Movement Desensitization and Reprocessing (EMDR); and pharmacotherapy medications such as Selective Serotonin Reuptake Inhibitors (SSRIs) and Serotonin-Norepinephrine Reuptake Inhibitors (SNRIs).

Cognitive Behavioral Therapy (CBT)

There are several variations of Cognitive Behavior Therapy (CBT) and a broad class of interventions which are typically structured by four main components. The four components are based on: Psycho-education; Anxiety management; Exposure techniques; and Cognitive restructuring techniques (service members' perception of the traumatic event). There is concrete evidence-base and randomized controlled trials supporting the effectiveness of these four CBT psychotherapy components in the treatment of PTSD.[46] The two cognitive behavior therapies well supported by the DoD and VA and have consistently shown to be the most effective when treating service members with PTSD are PE and CPT.[47]

Prolonged Exposure (PE)

Prolonged Exposure (PE) is an exposure-based cognitive psycho-education behavior therapy that teaches OCO veterans the problem and significance of PTSD related to war trauma. For example the service member learns about the signs and symptoms of this mental disorder and how to cope with PTSD reactions. This kind of exposure therapy has the service member think about, or repeatedly expose himself to, situations which trigger an anxiety reaction. The service member talks about the traumatic events with a mental health professional and records memories that trigger PTSD reactions. The learning and conditioning theory behind this component, is that after recurrent exposure, the traumatic reminders gradually lose the ability to trigger an anxiety reaction. Another PE therapy component is for the service member to learn and practice relaxation skills via breathing techniques. The service member learns to manage and control stress levels by deep breathing, meditation, and progressive muscle relaxation exercises.

Cognitive Processing Therapy (CPT)

Cognitive Processing Therapy (CPT) is a cognitive psychoeducation behavioral therapy. This type of rehabilitation treatment involves OCO veterans identifying the perceptive distortion of the traumatic event and recognizing the relationship between their thoughts and feelings. In other words, the PTSD education is focused on the service members' perception of thoughts and emotions while processing the historic traumatic event. Service members are challenged to relive their traumatic experience and decide whether these thoughts are based on facts or emotions. Also, in this CPT component the service member learns how to balance perception and restructure thoughts and works towards accepting the historical traumatic event.

Eye Movement Desensitization and Reprocessing (EMDR)

Eye Movement Desensitization and Reprocessing (EMDR) is a trauma-focused therapy and involves service members to focus and rethink about traumatic historical images and emotions (feelings) that distress them while doing rapid eye movements. This type of therapy is designed to alleviate the pain associated with traumatic events by reinforcing positive thoughts and images. The objective of EMDR is to help service members to access and process traumatic events while adapting to the distressing memories. With the notion that unprocessed traumatic memories distresses the service member even further and consequently becoming the focal source for a dysfunctional PTSD reaction. A study conducted by Francine Shapiro, suggests that a single eye movement desensitization procedure dramatically desensitized traumatic memories from subjects and affectedly adjusted their cognitive self-assessment.[48] According to the International Society of Traumatic Stress Studies (ISTSS) Expert Consensus Treatment Guidelines for complex disorder, "prolonged exposure and EMDR therapy improve emotion dysregulation often seen in PTSD by reducing the high sensitivity and distress associated with trauma-related stimuli."[49]

Pharmacotherapy

Pharmacotherapy alone for the treatment of PTSD is somewhat complicated, particularly when other comorbidities already exist. For example, service members struggling with substance abuse, psychiatric disorder, and/or other associated conditions; a combination of psychotherapy and medication may be required to treat PTSD. Therefore, depending on the different types/subtypes of comorbidities linked to the service member, hence the kinds of pharmacotherapeutics that will be used to treat PTSD.[50] In general, the medications mostly used are Selective Serotonin Reuptake Inhibitors (SSRIs) and Serotonin Norepinephrine Reuptake Inhibitor (SNRIs). This class of antidepressant drugs are widely used for the treatment PTSD

and associated conditions such as major depressive disorder, mood disorders, and anxiety disorders. Some PTSD symptoms are thought to appear because of a chemical imbalance and concentration of norepinephrine and serotonin and thus negatively effecting the brain. Consequently, causing emotional instability and affecting the service member by experiencing severe depression and anxiety.

There has been considerable progress on pharmacotherapy and the significant role it plays in targeting the specific pathophysiology of PTSD. In fact, in the past 20 years, randomized clinical trials at several sites have proven the effectiveness of SSRIs and SNRIs for the treatment of PTSD.[51] Both SSRIs (e.g. Celexa, Paxil, Prozac, and Zolof) and SNRIs (e.g. Cymbalta and Effexor) are used and approved by the U.S. Food and Drug Administration. On the other hand, there are other pharmacotherapy that have been used with promising results, however in the last ten years no new drugs have been approved for the treatment of PTSD.[52]

Other Types of Therapy

Stress Inoculation Training (SIT)

Stress Inoculation Training (SIT) differs from EMDR since it is categorized as a non-trauma focused therapy. This type of therapy helps the service member develop tools in managing stress, fear, and anxiety. Service members learn positive thinking and self-talk by replacing negative thoughts/feelings with positive thoughts/feelings. Also, the service member learns assertion and behavior skills to better cope with and express their emotions. Stress Inoculation Training does not transact in confronting and or reliving traumatic memories. Some of the treatment modalities overlap with other types of therapy (e.g. breathing techniques, relaxation training) and therefore somewhat difficult to differentiate from other trauma-focused

PTSD treatments. This type of treatment is largely used and adapted for service members with PTSD associated with rape and abuse.[53]

Complementary and Alternative Medicine (CAM)

Complementary and Alternative Medicine (CAM) are non-conventional medical therapies with some quality and encouraging results for the treatment of PTSD. For example, some of these therapeutic modalities are: acupuncture; natural products (e.g. herbs, aromatic therapy, and non-minerals); homeopathic medicine; relaxation techniques; and yoga. Some of these modalities are currently being offered by the U.S. Veterans Affairs and credential providers are integrating CAM into PTSD treatment plans.[54]

Acceptance and Commitment Therapy (ACT)

Acceptance and Commitment Therapy (ACT) like CAM is non-conventional and not considered a first line treatment modality. Yet there is an increased interest by mental health professionals in the use of ACT as a secondary (or tertiary) therapy for the treatment of trauma related PTSD. This type of therapy is a behaviorally-based modality and helps OCO veterans accept, confront, and live through their challenges despite their difficulties (e.g. feelings, emotions, memories, and physical problems). In other words, it teaches service members (OCO veterans) that they do not need to wait until they "get better" to live the type of life they want to live. The primary focus of ACT is providing service members the tools necessary to help them value the sense of living (e.g. choose and commit to what is important and meaningful to them) and not necessarily on decreasing PTSD symptoms.[55]

Group and Couples Therapy

Group and couples psychoeducation therapy is an efficient and less costly treatment modality which helps OCO veterans feel less isolated. It also helps both service members and their families normalize the symptoms, to some extent, by understanding that other OCO veterans are going through some of the same life experiences. This type of therapy gives service members and their families the tools and the opportunity to interact as well as support one another. Most importantly, it also validates their feelings and concerns. Moreover, loved ones play a significant role as motivators and proponents by encouraging the therapy even when the service member has difficulties confronting their challenges.[56]

Telemedicine

Telemedicine or telehealth has been proven to be helpful by reaching-out to service members who suffer from PTSD. For example, telecommunications has helped OCO veterans who live in geographically remote regions, treatment-resistant veterans, and those who reside in rural areas.[57] These types of telecommunication services provide psychoeducational therapy, clinical assessment, individual, and group intervention via various information and communication technology methods. Primarily telemedicine uses video teleconferencing (VTC) technology. Other telehealth modalities being used are: e-mail, chat rooms, online self-help groups, blogs, and telephone. Telemental health provides fast, convenient, economical and to a certain degree, an untapped opportunity for some OCO veterans living in remote areas. On the other hand, there is considerable controversy over the effectiveness and use of Telemedicine (e.g.

Internet, VTC, etc.,) to supplement clinical face-to-face therapy to diagnose and treat service members suffering from PTSD.

Recommendations

As previously mentioned, not all trauma-focused psychotherapy and pharmacotherapy works in the same manner, or achieves the desired results for OCO veterans. Nonetheless, the treatment modalities discussed, specifically evidence-based treatments for PTSD and associated metal health problems have proven to be effective. Specifically, the aforementioned therapies (e.g. CPT, PE, EMDR, SSRIs, and SNRIs) have helped service members with PTSD more than no treatment at all (Figure 4). The effect size in figure 4, represents how noticeable the outcome of the corresponding PTSD treatment. For example, an effect of 0.2 is considered small and therefore, there would be minimal to no noticeable change in the service member's wellbeing. An effect size of 0.5 is considered medium and the service member as well as family and friends would notice some change. An effect size of 0.8 is a large effect with noticeable outcome to everyone. That said, more needs to be done since, "the effects of a post-combat mental illness can be compared to ripples spreading outward on a pond, but whereas ripples fade over time, the consequences of mental disorders may grow more severe, especially if left untreated."[58]

PTSD Evidence-Based Treatments Meta-Analysis Results		
INTERVENTION	EFFECT SIZE	CONFIDENCE INTERVAL
Prolonged Exposure (PE)	1.91 (very large)	1.52 - 2.30
Eye Movement Desensitization and Reprocessing (EMDR)	1.89 (very large)	1.07 - 2.71

Cognitive Processing Therapy (CPT)	1.81 (very large)	1.41 - 2.21
Selective Serotonin Reuptake Inhibitors (SSRIs)	1.64 (very large	1.13 – 2.16
Placebo	1.20 (very large)	0.98 – 1.45
Other Treatment	0.789 (medium - large)	0.68 – 0.92
No Treatment	0.42 (small - medium)	0.33 – 0.53

Figure 4: Information Obtained from: U.S. Department of Veterans Affairs. PTSD: National Center for PTSD. Professional Section for Researchers, Providers, and Helpers. Washington, D.C. Website. *Evidence-Based Treatments for PTSD: What the Research Tells Us About Patient Improvement.* Meta-Analysis Research published in 2012.[59]

While there has been some progress in Complementary and Alternative Modalities (CAM) for PTSD, more evidence-based research studies to validate strengths and challenges related to the efficacy of CAM therapies need to be accomplished. There are some cultural and religious groups of OCO veterans who do not seek conventional treatments and prefer CAM therapies. For example, Native Americans are at a higher risk to be underserved because many have a preference for holistic wellness therapies (e.g. ceremonials, natural herbal, and food supplements) and not all VA medical centers provide these types of alternatives.[60] Also, some service members and their spouses prefer acupuncture, massage therapy, and yoga exercises as an alternative to pharmacotherapy.

Another significant problem that requires the services' attention, are potential recruits with a history of psychiatric and other predisposed mental health disorders. In order to identify and probably disqualify recruits with mental health issues, the services need better pre-qualification entrance procedures for those who want to join the military. Therefore, the implementation of a comprehensive mental health exam and PTSD screening tools imbedded in the existing physical entrance exam is much needed. Accordingly, the psychological evaluation

component should be administered primarily by a trained mental healthcare provider. To better streamline potential recruits, an updated electronic health-record repository and centralized database that interfaces across the DoD, the VA system, and the services should be a high priority. This communication and assessment database (standardized electronic workflows) would help healthcare providers during the pre-qualification screening process.

The military healthcare system is bigger than many other U.S. healthcare organizations, thus better coordination and communication across the services is required. The first step to new initiatives is leadership buy-in. Hence, leader-driven educational programs to combat the stigma associated with mental health disorder, specifically PTSD, is essential to the health and well-being of the U.S. military. Joint civil-military leaders can drive an aggressive communication and education strategic campaign to "get the word out" regarding the different types of PTSD wellness programs. Further, a joint effort by civil-military leaders can help by breaking down barriers to ensure more holistic, comprehensive, and culturally acceptable PTSD training and educational programs are standardized across the services.

The services are relying heavily on innovative Computer Based Training (CBTs), virtual games, and simulators in an effort to "optimize" pre-deployment training. While CBTs and other electronic gadgets are important in today's military, they lack the resilience and warrior ethos element. Currently not all service members receive realistic readiness field exercises with hand-to-hand combat and weapons training prior to deployment. This is indispensable because as the battlefield and overseas contingency operations evolve, marines, soldiers, and aircrew will not be the only ones who will engage the enemy. Medics and other career fields are being tasked with missions and responsibilities that 15-20 years ago (pre 9/11) were not conceivable. For that reason, a change in the warrior mindset and cultural shift in the services needs to happen.

Leaders need to cultivate warrior skills and provide service members the warfighting tools and realistic training necessary to drum in the warrior ethos. In other words, "train like we fight" courses that will enhance resiliency, improve confidence, and cultivate hope among all ranks.

Conclusion

> *"[T]he soldier above all other people prays for peace, for he must suffer and bear the deepest wounds and scars of war. But always in our ears ring the ominous words of Plato…'only the dead have seen the end of war."*

-General Douglas MacArthur, Farewell Speech, USMA at West Point, May 12, 1962.[61]

There is great concern about the mental health crisis America currently faces. The U.S. government spends an estimated four billion dollars per year on PTSD and associated metal healthcare issues.[62] Veterans of the Iraq and Afghanistan wars have presented countless clinical and psychobiological challenges far beyond the battlefield. Military healthcare professionals and the VA system are among the most experienced in assessing and treating war-related PTSD. This is evident by the many screening tools, innovative programs, and therapeutic modalities to identify and treat PTSD.[63] However, there are no standardized PTSD screening tools and clinical processes across the services and the VA system. Mental health professionals across the services and the VA system use many different clinical tools and therapeutic modalities to treat a myriad of PTSD cases. Thus, it is critically important for the services to streamline assessment screening tools, psychoeducational information, support network programs, patient-centered therapeutic treatment modalities, and have better access for OCO veterans and families suffering from PTSD.

In closing, there is no cure for PTSD. Still, with the help of military healthcare professionals, PTSD and associated symptoms can be treated, controlled, and managed with

different types of therapies. Unfortunately, there are different reasons why service members do not pursue help and/or have access to mental healthcare. Some of these factors can be linked to personal and economic well-being, sociocultural, pre-deployment training and/or related to post-deployment reintegration experience. This is particularly important to understand since early intervention, or the lack of, will shape how OCO veterans respond to war-zone stressors. For example, some service members stopped looking for help because they felt ostracized, stigmatized, or they simply did not receive correct information and guidance. Some OCO veterans who have developed PTSD do not meet the full diagnostic criteria beforehand and stopped seeking help altogether. For that reason, today's military requires leader driven educational and wellness programs with standardized periodic screening tools and protocols to help them identify and recognize signs and symptoms of PTSD. This will enable them to seek early intervention and help those suffering from PTSD.

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